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NEWS LETTER

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BUREAU OF PLANT QUARANTINE

UNITED STATES DEPARTMENT OF AGRICULTURE

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STATE PLANT BOARD

Number 34 (NOT FOR PUBLICATION) October 1, 1933.

ADMINISTRATIVE

On September 29, Secretary Wallace announced the transfer of Lee A. Strong from the Bureau of Plant Quarantine to the Bureau of Entomology, effective October 1. Avery S. Hoyt has been designated Acting Chief of this Bureau.

A dinner given in Dr. Marlatt's honor, retiring chief of the Bureau of Entomology, on the occasion of his 70th birthday on September 26, at the Cosmos Club, was largely attended by representatives of both bureaus.

FOREIGN PLANT QUARANTINES

RECENT ENTOMOLOGICAL INTERCEPTIONS OF INTEREST

Fruit-fly larvae in guavas.--Larvae of the Central American fruit fly (Anastrepha striata Schiner) were intercepted at Laredo, Tex., in guavas in baggage and cargo from Mexico.

Host record of interest.--Amblycerus cistelinus (Klug) (Bruchidae) was intercepted at New York in seeds of Guazuma ulmifolia in baggage from Venezuela. J. C. Bridwell, of Washington, D. C., reports as follows: "This is a record of considerable interest, the host relations of this widely distributed tropical American species described in 1929 being previously unknown. The host plant is a close ally of Theobroma (cacao) in the family Sterculiaceae, no member of the family being known to be affected by Bruchidae."

Elm logs infested.--Scolytus scolytus (F.), reported to be the chief means of spread in Europe for the Dutch elm disease, was intercepted at Baltimore, Md., New York, N. Y., New Orleans, La., and Norfolk, Va., in cargo from France. Other Coleoptera arriving with elm logs from France are Magdalis armigera Geoff., (Curculionidae), Scolytus multistriatus Marsh (Scolytidae), Pteleobius kraatzi Eichh. (Scolytidae), Ctesias serra F. (Dermestidae), Hypophloeus bicolor Ol. (Tenebrionidae), Saperda sp. (Cerambycidae), and Thanasimus formicarius L. (Cleridae). The last-named species feeds on the larvae of bark beetles.

Scale insect on willow scions.--Aulacaspis major (Ckll.) (Coccidae) was intercepted at Washington, D. C., on scions of Salix chinensis in the express from Cuba.

Thrips from Nicaragua.--Dicaiothrips brevicornis Bagn. was intercepted at Mobile, Ala., on banana debris in cargo from Nicaragua. J. R. Watson, of Gainesville, Fla., states that this species is not known to occur in the United States.

Scolytid from Czechoslovakia.--Adults of Thamnurgus euphorbiae Kust. (Scolytidae) were intercepted at Philadelphia in a plant of Euphorbia sp. in the mail from Czechoslovakia.

Gladiolus thrips from Bermuda.--Taeniothrips gladioli M. & S. was intercepted at Boston in and on a gladiolus flower in baggage from Bermuda.

Lepidopterous larvae in an avocado fruit.--Larvae of Stenoma sp. (Stenomidae) were intercepted at New Orleans in an avocado in ship's quarters from Mexico.

Thrips on banana debris.--Haplothrips merrilli Watson was intercepted at Philadelphia on banana debris in cargo from Guatemala, Honduras, and Mexico. J. R. Watson reports as follows: "I described this species several years ago from specimens taken in Cuba. We have since had it from most of the West Indies Islands, and from the extreme south of Florida." Professor Watson further states that it is apparently a predator as it is usually found associated with scale insects.

Scale insect on croton.--Parlatoria mytilaspiformis Green (Coccidae) was intercepted at San Francisco on croton in baggage from Hawaii.

Turnips from Norway infested.--Larvae of Psylliodes chrysocephala Linn. (Chrysomelidae) were intercepted at Philadelphia in turnips in stores from Norway. This is the first record in our files of this insect being intercepted from Norway.

Coccid from Czechoslovakia.--Lecanium coryli (Linn.) was taken at Washington, D. C., on an apple scion in the mail from Czechoslovakia. This is a European species which has become established in the State of Washington and in British Columbia.

Weevil larvae in white turnips.--Larvae of Ceutorhynchus sulcicollis Thoms. (Curculionidae) were intercepted at Philadelphia in white turnips in stores from England.

RECENT PATHOLOGICAL INTERCEPTIONS OF INTEREST

Bulb season starts.--The fall bulb shipping season has started. One shipment of hyacinths from France and two from Holland have been found infested with the bulb eelworm (Tylenchus dipsaci) at New York.

Miscellaneous nemas.--Relatively few parasitic nemas have been intercepted recently. One lot found at New York in carrots from Germany has been determined as Hexameris sp. (probably parasite of some insect). Aphelenchoides parietinus was intercepted in beets from England and in potatoes from Norway at Baltimore. Heterodera schachtii was intercepted in beets from Mexico at El Paso.

Garlic disease.--Discolored areas on garlic from China intercepted at Seattle were found to contain numerous spores of Fusariella sp.

Orchid disease.--A number of orchids arriving in Hawaii from the Philippines were found on inspection to be infected with Colletotrichum orchidearum. This is the first interception of this disease from the Philippines.

New record for rust.--Catharanthus roseus leaves collected at Santurce, Puerto Rico, were found to bear uredinia of a rust. Additional material was obtained and divided with Dr. J. C. Arthur, whose staff determined the rust as Coleosporium apocynaceum. This constitutes a new host and a new locality record for the rust.

Gladiolus scab from Chile.--Gladiolus bulbs from Chile intercepted at the Washington inspection house were submitted to Miss Lucia McCulloch, who confirmed the presence of scab (Bacterium marginatum) on them.

Aucuba japonica disease.--A diseased leaf collected at Seattle from a plant of Aucuba japonica from Japan was submitted to Miss E. K. Cash, who reports as follows: "Mycosphaerella sp. (spores simple or 2-celled). Possibly Sphaerulina aucubae Shirai & Hara with spores not yet 2-3 septate. Agrees with description in general."

DUTCH ELM DISEASE IN LOGS FROM EUROPE

The alarming situation created by the discovery of the Dutch elm disease over a considerable area in the environs of New York City, mainly in the State of New Jersey, has suddenly been complicated by the arrival of several shipments of elm logs from Europe, consigned to eastern veneer factories. The first shipment of this material during 1933 arrived July 25 Subsequent to that date other lots have been sent from Europe, and in all eight entries, comprising 69 elm logs, have been made at New York (2); Norfolk (4); Baltimore (1); and New Orleans (1).

The development of extensive burls in these logs makes them desirable for special veneer use, and apparently there is now an increased popular demand for this type of veneer in furniture.

The danger of bringing such logs to this country has been apparent from the first arrival, and though their entry was not covered by any existing quarantine every effort was taken to surround these importations with adequate safeguards. The urgent need for protective measures is well indicated by the fact that in every shipment, all of which were received with the bark intact, the insect (Scolytus scolytus), regarded in Europe as the principal agent in spreading the Dutch elm disease, was found in considerable numbers. And the peril in this unfortunate combination of host and insect carrier was further highly intensified when cultures disclosed the presence in at least three of these shipments of the wilt fungus (Graphium ulmi).

The shipment arriving at New Orleans was given a hot-water treatment under the direction of W. T. Dillard; for those lots coming in at Norfolk arrangements were made locally by M. C. Rich for the same effective safeguard; L. M. Scott was able to provide for similar hot-water treatment for the shipment entering at Baltimore; and the New York shipments were subjected either to this hot-water treatment or to vacuum fumigation.

It is worthy of note that the importers of these logs, without exception, have displayed a most cooperative spirit in this emergency. Without this public-spirited attitude on their part it is doubtful if these safety measures could have been effected, owing to a lack of authority in the Plant Quarantine Act to deal with such materials before official quarantine action has brought them definitely under control.

No permits have been issued for the importation of elm planting stock from Europe since April 4, 1927, and all trees grown from stock imported since the earliest importations in 1923 have been carefully inspected to assure their freedom from the disease; elm seeds have been excluded from Europe since December 22, 1930. When the closely related genus Zelkova was reported to be a host of the Dutch elm disease it was likewise put under suspicion and was not imported after March 30, 1929.

ROSARIES INFESTED BY INSECTS

Two packages containing 684 rosaries, coming from Rome, Italy, were received recently at the Washington, D. C., Inspection House through the Customs Division of the City Post Office. These rosaries were made from a silver-like metal chain on which were strung seeds of Gleditsia caspica. On opening the parcels many lepidopterous larvae and pupae were collected in the paper packing and among the rosary chains. These have been identified by Carl Heinrich, of the U. S. Bureau of Entomology, as Plodia or Ephestia sp. (?). Although no insect injury was visible on the hard seed coating it was very evident, from the frass at the openings in the ends of the seeds, that the larvae had been feeding on the inside. It is doubtful if these tough-coated seeds could be injured by this type of insect unless a break occurred in the outer covering. Infestation took place, it is believed, either after the rosaries were completed, or just after the seeds were prepared for stringing.

INTERCEPTION OF FRUITS AND VEGETABLES FROM HAWAII

A recent letter from A. C. Fleury, as collaborator directing port inspection work in California, includes some interesting comment on the enforcement of Quarantine no. 13, on Hawaiian fruits and vegetables.

> We have been making rather frequent and numerous interceptions of violations of Quarantine Order No. 13 on vessels operated by the Matson Navigation Company. No doubt this condition is partially accounted for by the fact that these vessels now operate in a triangular run, and many passengers from Hawaii who intend to disembark at the second port of call at the mainland are under the impression that it is not necessary for them to consume or destroy Hawaiian fruits or vegetables until they arrive at the mainland port where they will disembark. On the other hand, a rather frequent turn-over in the crew members on these vessels may partially account for this condition.
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> On one vessel recently five different lots of Hawaiian contraband fruits were intercepted, two of these lots in possession of

the crew and three in the possession of passengers. In the case of one lot of watermelons, they were found to be heavily infested with melon fly, and in the case of one lot of mangoes in the room of a passenger, they were not only found infested with the larvae of the Mediterranean fruit fly but pupae of the Mediterranean fruit fly were found in the berth on which the fruit was being carried as well as on the floor, under the rugs in the room. Needless to say, adequate and necessary disinfection and other safeguard measures were taken to meet this situation.

We have brought these matters frequently to the attention of the Matson Navigation Company and they have always cooperated with us in every way in attempting to reduce the number of such violations, particularly on the part of their crew members. They immediately discharge any member of their crew who carelessly or otherwise brings in any contraband fruits. Recently they discharged the chief steward on one of their larger vessels, who had been with the company for twenty-seven years. They have posted notices of their own throughout the vessel and have repeatedly circularized masters on all their vessels calling their attention to the quarantine regulations.

HURRICANE DAMAGE ON MEXICAN BORDER

Reports from O. D. Deputy, chief inspector in the Brownsville district, following the hurricane of September 4 and 5, indicate that none of the border inspection force suffered bodily injury, though the damage to property both private and governmental was considerable. The roof of the fumigation house at Brownsville was blown clear away, the walls cracked, and the large swinging doors so badly twisted out of shape that it is doubtful if they can be repaired successfully. The roof of the office held, but a storeroom lost its covering and all records and supplies stored there were destroyed or damaged. The torrential rains which accompanied the storm flooded the whole district and delayed communication for days. Airplanes were unable to land on the flooded airports. The two Government cars were bogged down in the fumigation house where they were stored; Mr. Deputy's own car had the top sheared off by a flying roof, and the top of Mr. Swan's car was caved in by falling debris.

With the fumigation house out of commission plans were being made next day to pipe gas into incoming cars as a temporary means of fumigation.

Mr. Deputy gives the following vivid picture of the storm:

> Early Monday afternoon I was advised that the barometer was falling rapidly and by 3:30 p.m. when the change of shifts at the bridge was to be made it had fallen to 29:29 and I ordered the men on duty to tell their relief not to stay at the bridges. I am told that the barometer finally reached 27:89 during the lull that preceded the blow back and that the wind reached a velocity of 135 miles an hour. I know that the wind was so strong that it tossed heavy tiles off of my house as if they were autumn leaves. They would fall and break with a metallic sound that was constantly reminding me of the noise heard in a shooting gallery.

The storm started Labor Day morning at 11 when a strong wind sprang up out of the northwest bringing with it a blinding rain. The rain came down in such torrents that objects 50 feet away could not be recognized. From then on the wind steadily increased in velocity until 1:30 the next morning when it gradually decreased and there was a lull for about 2 hours. At 4:30 in the morning the wind returned, this time out of the southeast, and it blew at gale and hurricane velocities until 1 in the afternoon, making a total of 26 hours that it stormed. The wind gages at both the local weather bureau and at the air port were broken. It seems that the anemometer at the air port was the last to go and it was registering the wind at 90 miles an hour when it went off. From 11 p.m. on until 1 p.m. the wind was so strong out of the northwest that it sucked two windows out of the leeward side of my house.

The first hurricane we had was mild compared to the one we just experienced. The latest one lasted twice as long and did many times more damage. The strange part of it was that strong brick buildings like the high school would have whole corners or a story blown off of them while some of the Mexican shacks would remain intact. I think that it was all a question of a wind break. It appears that nothing could withstand the fury of the wind where it got a clean sweep at an object. The whole northwest corner of the hospital that stood off by itself was caved in. The wind was so strong that it would pick up the mud from the street and hurl it through the air. There was but one life lost in Brownsville as far as I have heard, and there was one boy who had both legs crushed off by a flying roof, but in Matamoros I have heard as high as 120 persons were killed. It will take several days for the people of the Valley to get their bearings.

DOMESTIC PLANT QUARANTINES

STRAWBERRY DWARF

On the recommendation of the Bureau of Plant Industry, the situation with reference to the strawberry dwarf has been called to the attention of the nursery inspectors of the various States with the suggestion that the presence or absence of the disease in nursery plantings be considered in connection with the issuance of nursery inspection certificates. The various regional plant boards have also been asked to give such consideration to the situation as seems appropriate. It is reported that there is a very high percentage of dwarf disease in some strawberry plantings and that the available evidence indicates that the planting stock was almost certainly infected before shipment. The Bureau of Plant Industry states that while the economic importance of the strawberry dwarf disease is still somewhat uncertain and may depend partially on weather conditions, they believe it to be of sufficient importance to warrant greater attention than has been given to it by nursery inspectors in the past. There is a Department publication (Circular No. 174) on the subject entitled, "Field Observations on the Strawberry Dwarf."

EUROPEAN PINE-SHOOT MOTH

It is reported that damage caused by the European pine-shoot moth (Rhyacionia buoliana) is becoming more serious in the New England States and New York, and that nursery infestation is complicating the problem. Accordingly, a special conference to consider the situation was held on September 19 at New Haven, Conn., having been called by the Bureau of Plant Quarantine at the request of the Eastern Plant Board. Injury from the fall brood of larvae was examined on the pine twigs in that vicinity and there was opportunity to make field observations as to the economic importance of the pest. The principal subjects discussed were the best methods of inspecting nurseries to determine the presence of the insect, and the policies to be adopted for preventing the spread of the pest and suppressing infestation.

CERAMBYCID BORERS IN BAMBOO

The discovery of live specimens of Cerambycid borers in bamboo Tonking sticks at a nursery in New York State is reported by Dr. R. D. Glasgow, Entomologist of that State. The specimens were tentatively identified, Dr. Glasgow reports, as Niphona furcata Bates, said to be a pest of bamboo in eastern Asia. The Tonking sticks had come to the nursery from a company in New York City in two shipments of 1,000 sticks each, and it is reported that the insects were found in both shipments. Inquiries are being made within the Department as to any available data concerning the insect.

DUTCH ELM DISEASE

The number of trees found infected with the Dutch elm disease in New Jersey and New York was reported by the Bureau of Plant Industry to have reached about 398 in New Jersey and 15 in New York by September 15. The center of the infection is in Essex County, N. J., with a few trees showing the disease as far west as Bound Brook and New Brunswick, N. J., and as far east as White Plains, Rye, Port Washington, and Lynbrook, N. Y.

TRANSIT INSPECTION

Transit inspection activities will be resumed, it is expected, the latter part of September, at St. Paul, Omaha, Council Bluffs, Kansas City, Portland, Seattle, and Spokane, with Federal inspectors at each of these points, and the force at Chicago is being strengthened with the assistance of State inspectors of Illinois. It is hoped that State inspectors may also be available for work at St. Louis, Kansas City, Council Bluffs, and Milwaukee.

A shipment of gladioli from Hartford, Conn., which were infested with gladiolus thrips, was recently reported by one of the Boston inspectors.

BLACK STEM RUST

During the recent inspection of nurseries in connection with applications for shipping barberry and Mahonia plants, the inspector learned that such plants in an Ohio nursery were being grown from imported seed secured from certain dealers outside the protected States. The fact that the seeds of these plants, as well as other parts capable of propagation, come within the provisions of the quarantine, had evidently escaped the attention of the shippers. Accordingly, they were provided with information from this office as to permit requirements for shipping into States which are being protected from the rust by barberry eradication.

PHONY PEACH DISEASE

The inspection of nurseries and their environs for the presence of phony peach disease has been completed in the States of Georgia, Alabama, Tennessee, and Texas. While full reports of the results have not come in, it is learned that there has been some spread of the disease in northern Alabama. Many of the infections found there were just emerging from the incubation period, however, and it is felt that the condition will yield to prompt and thorough eradication. The force of three inspectors is now starting work in South Carolina, Oklahoma, and Illinois.

The State of Tennessee recently revised the regulations applying to the phony peach disease, to extend to infected areas outside the State, and to include certification relating to the peach root borer.

WHITE-PINE BLISTER-RUST

Two U. S. Forest Service nurseries in which white pines are being grown for reforestation purposes, are among those for which permits have been issued under the provisions of the blister rust quarantine. One of these, the Parsons Nursery, Parsons, W. Va., was established "to bring the Monongahela (National Forest) back to productivity and to reforest almost 40,000 acres of devasted lands." This national forest protects a part of the headwaters of the Monongahela, Kanawha, Potomac, and James Rivers, and offers excellent possibilities for timber production and recreational purposes. While native red spruce will be the major crop, according to the Forest Service, white pine will also be planted on the forest, and other coniferous trees will be raised in small numbers for experimental purposes. An annual production of 500,000 white pines is anticipated. Shipments from this nursery have been made during the present year to the George Washington and the Unaka National Forests, the former in Virginia, and the latter in Tennessee.

Another Forest Service nursery for which a permit has been issued is the one at Rhinelander, Wis. Three million white pines are being grown on land donated for the purpose, and the nursery will supply trees for reforesting denuded areas on lands purchased for national-forest purposes in Wisconsin and in the nearby portion of Michigan.

The procedure for including white pine permits in the joint certification plan was completed during the month. The joint certificates will show certification under Quarantine No. "63" with respect to those nurseries in the gypsy moth regulated area which also have pine-shipping permits. Only two such nurseries in that area have received permits this year. For shipments between the New England

States and New York, where control area permits from the States of destination are required, the joint certificate will read: "63 Contr. Ar." and notifications as to all such control-area certificates issued by the gypsy moth inspectors will later be sent to the plant quarantine officers of the States of destination. Joint certificates are used only in cases in which inspectors are assigned to the nurseries to certify individual shipments, and are not used in cases such as the Class I nurseries in the Japanese beetle regulated area to which certificates are supplied monthly.

DATE SCALE ERADICATION

A survey of the date plantings in the Coachella Valley is in progress. Each palm is being inspected but only from the ground, no ladders being used. The reports turned in by the inspectors give the palm census by age and also the condition of the plantings for inspection, thus indicating the necessary work to be done during the winter.

The reports from this survey show a great difference in the plantings as contrasted with those turned in in 1929. There are no seedling jungles in the infested area and very few outside this area. Most of the worthless seedlings have been dug out and destroyed. The growers have been doing considerable pruning, and most of the offshoots have been removed from the palms or have had their foliage cut back. This means that few gardens are difficult to inspect, and the possibility of overlooking scale is lessened. There is a large increase in the acreage since 1929, and an increase in the height of palms. Many palms which could be inspected entirely from the ground in 1929 now require inspection from ladders 14 feet or more in height. Many palms cannot now be inspected from 20-foot ladders.

In Arizona all plantings of standard variety palms are being inspected. Most of the palms were brought in from the Coachella Valley as offshoots, in some cases from properties that were previously infested or on which scale was found later. Due to the physical structure of the offshoots, it is quite possible the scale might exist on portions of them which could not be observed by ordinary inspection, that is, on the leaf-bases under the bands of fiber. Such an infestation might escape observation for 2 or 3 years under certain conditions.

JAPANESE BEETLE AND EUROPEAN CORN BORER

Exclusive Japanese Beetle Work

As noted from a number of newspapers printed in sections heavily infested by the Japanese beetle, active campaigns designed to reduce Japanese beetle populations to a minimum were sponsored this summer by a number of civic organizations and municipal officials. Among those active in organizing this summer's campaigns

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have been The Kiwanis Club and Park Department of Perth Amboy, N. J.; The Woman's Club of Woodbridge, N. J.; The Landscape Service of the Citizens Unemployment Committee of Mount Vernon, N. Y.; The Spotswood Garden Club, Spotswood, N. J.; Supervisor of Public Works, M. Andronico, Hackensack, N. J.; Troop 87, Boy Scouts of America, Barrington, N. J.; and Postmaster Lester Quigley, Manville, N. J. Probably the most energetic of the campaigns was the one sponsored by the Kiwanis Club of Perth Amboy. Their campaign was launched on August 2. The Kiwanis Club, three of the theaters of the town, the Emergency Relief Committee, and the Perth Amboy Hardware Company cooperated. The hardware store was the headquarters for turning in the collected beetles. For every pint or more of beetles brought in by boys and girls, a pass to one of the local moving picture theaters was issued. Three thousand five hundred passes were given out. In this manner, nearly six million beetles were collected within a period of 2 weeks. According to the chairman of the public affairs committee of the Kiwanis Club, the whole project exceeded the Club's expectations. They had no idea that beetles would be turned in in the quantities they received. After the first day they were obliged to call for help. The Emergency Relief Committee of Perth Amboy cooperated by furnishing men to take care of receiving and recording the collections. In addition to the passes to the theaters, the Kiwanis Club offered weekly prizes of $2 and $1 to the two children turning in the largest quantities. Considerable publicity was given the campaign, since the secretary of the Club is city editor of the local Perth Amboy paper. Supplementing the local campaign, the Park Department of Perth Amboy operated traps, which caught about five and one half barrels of beetles. Children were permitted to collect the beetles in the parks, but were not allowed to empty the traps. According to the Director of Parks, they received a very good lesson on the destructiveness of the beetle, since in one flower bed alone, before they had a chance to cope with the situation, the beetles literally "ripped the bed apart."

The severity of the storm of August 23 is illustrated by the experiences of the trap inspector at Annapolis, Md. Rain started on Monday, August 21, 2 inches falling that day. The following day there was but a small amount of precipitation. Late Tuesday evening the wind changed to northeast and a 30-mile-an-hour gale started to sweep across the bay. All day Wednesday the rain fell in torrents and the wind increased to 55 miles an hour. Wednesday morning the trap inspector received word that the tide was coming up over the breakwater at the Naval Academy. He went to rescue the traps in his care, and had to wade through 2-1/2 feet of water to where the traps were set up. The wind was blowing so hard he could hardly keep on his feet. Three traps were removed from their position, but four could not be found since they had been blown over and were covered with water. After the storm had subsided on Thursday, the remainder of the traps was located, although the water was still 8 inches deep at that point. One trap had blown through a tennis court fence. Practically all of the traps on the Naval Academy grounds had been blown down. At the State House grounds, three of the traps had been blown over, and one was beneath a 50-year-old locust tree which had been felled. At another point the water was still 4-1/2 feet deep near the bay and it was impossible to tend the traps in that locality. Four other traps were found under fallen trees in the town. All standing traps were clogged with small branches or leaves. Many homes and all gardens were ruined. According to report, this was the worst storm in the history of Annapolis. While en route to Upper Marlboro on August 25, it was necessary for this inspector's machine to be towed through a section of road flooded by the Patuxent River. The State Roads Commission furnished a free towing service through 2-1/2 feet of water. On the return trip, the inspector had to wait

2 hours for a tow through the flooded area. A somewhat similar condition was experienced with traps placed in Potomac Gardens in the District of Columbia. In the Gardens, the traps were covered with water up to the baffles. A number of them were washed over and drifted away with the strong current.

In New Jersey, during August, 700 State-owned traps that had been used in determining degrees of infestation in 15 towns and around several lakes in the northern counties were lifted. Nursery and greenhouse scouting crews covering uninfested nurseries and greenhouses in North Jersey were dismissed on August 19. During the month, crews picked up 56 beetles on the premises of 10 commercial shippers; and 48 beetles within 500 feet of 11 additional establishments. As a result of the season's scouting it has been necessary to change the classification of 15 establishments. This will result in additional regulatory work in the territory served by the Rutherford office. Supervision in the Rutherford district heretofore largely has been over Class I, or uninfested premises. There has been very little cut flower inspection work in New Jersey due to the market conditions for this commodity. No berries were fumigated at the Hammonton berry market, and only 80 crates of blueberries were fumigated at New Lisbon. The peach crop of the State was so small that markets inside the regulated zone absorbed most of the crop at attractive prices, although over 4,000 bushels were certified for movement to nonregulated territory. Early in August outside markets were still attractive for Lima and string beans, resulting in the certification of over 15,000 bushels. Visits to commercial packers of apples and peaches continued. Certification of peaches was granted on the basis of satisfactory handling of the fruit in the course of grading and packing. Overhauling of a dozen beetle separators subject to hard usage during the bean inspection season will be made shortly.

Soil treatment with arsenate of lead in Erie, Pa., began on August 22. By the end of the month 12 acres had been sprayed at the rate of 1,000 pounds of the poison per acre. Two high-powered spraying outfits were used, one for applying the insecticide and the other for washing it into the soil. Eleven men comprise the two spraying crews. Applications at the 1,000 pound rate will be made at the sites of all trap finds outside the 1932 treated areas. Exceptions are being made in the case of vegetable gardens, the ground in which will probably be sprayed this fall. Experimental results obtained by the Bureau of Entomology indicate that treatment of the soil and turf at this dosage will establish a condition toxic to Japanese beetle larvae for a period of over 5 years. Twenty-one tons of arsenate of lead will be applied before the Erie treating is completed. Effectiveness of foliage spraying work performed during July is attested by a published statement released on August 17 by the Erie municipal shade tree commission to the effect that "Citizens had an exceptional opportunity to watch the rapid and efficient work of the high-powered equipment used by the Federal Department of Agriculture against the Japanese beetle. Erie with its trees needs such equipment. Public opinion can stress the need of an appropriation for its purchase by the parks department. It can be used in parks as well as on streets."

As he was about to leave the farm products inspection platform in Baltimore at the end of his tour of duty on Saturday morning, August 12, Inspector William Renner heard a woman scream. Looking across the street he saw an old lady running down Fallsway Avenue shouting for someone to "Stop that thief." From the middle of the street the inspector saw a colored man with a gray sweater turning the next corner at full speed. He halted an approaching truck, jumped aboard, and told the driver to go in the direction he had last seen the negro. After a chase of five blocks, the truck overtook two fast fleeing negroes, both with gray sweaters. After passing the fleeing men, the inspector jumped off the truck on the run and from behind a large truck parked at the curb emerged to catch both negroes in his arms. He grabbed both by their collars. The two negroes denied knowledge of any theft; but after proceeding a short distance toward a police box, the larger negro dropped a pocketbook from his waist. This was recovered by a passer-by attracted by the scuffle. Shortly thereafter two policemen arrived and relieved the inspector of the culprits. Later the two captives were indicted by the grand jury. They were tried on August 23. Both pleaded guilty and were sentenced to 6 months in the house of correction. The pair is also wanted for burglary in Virginia.

Canvassing of farmers, estate owners, city residents, and superintendents of golf courses, parks, and cemeteries was undertaken during the months of July and August, in an effort to determine expenditures for control of the Japanese beetle and actual losses from crop destruction by the insect. Only two men were available for assignment to full-time work on the canvass. Numerous inspectors of the New Jersey personnel devoted to the survey all of their time not occupied by regular routing duties. The survey was designed to procure signed statements from individuals showing definite, accurate, and conservative losses or control costs. Interviews and correspondence were confined to individuals in an area exhibiting continuous Japanese beetle damage. Conditions representative of the degree of injury to be found throughout the entire zone of continuous damage were selected. Information concerning extreme localized injury by the insect was discarded. Indefinite or questionable data were also omitted from the final tabulations. As a result of the canvass, there is now available an abundance of authenticated evidenc of Japanese beetle injury to various crops, together with reliable costs of protecting from destruction various susceptible farm crops, as well as turf and foliage in parks, cemeteries, residential blocks, estates, and golf courses.

At the end of August, 180 men furnished by emergency relief boards were employed on various phases of Japanese beetle quarantine and control activities. Four men in Pennsylvania and three in Maryland were engaged in inspection of quaran tined fruits and vegetables. Eight workers were assigned to maintenance work at the New Cumberland, Pa., garage. Eleven men were employed as road inspectors on the Pennsylvania-West Virginia and Pennsylvania-Ohio State lines. Three scouts were engaged in surveys of nursery and greenhouse establishments in Pennsylvania. The remaining welfare workers were engaged in trapping work in towns and cities outside the regulated zones. Of the latter employees, 67 were employed in Ohio, 34 in New York, 15 in Pennsylvania, 14 in Michigan, 13 in West Virginia, 5 in New Hampshire, and 3 in Vermont. Many of these were part-time workers. Arrangements for furnishing this welfare labor usually were made with the chairman of welfare work in the respective county in which the activities were performed. In a few cases the State Employment Office selected the men. Actual contact with the men assigned to the project was maintained through the chairman in charge of the welfare work in the community concerned.

Protection of Japanese beetle traps often requires considerable ingenuity or the part of trap inspectors. Recently a trap inspector in a Maryland community while tending his route found a number of traps missing. Inquiry of local residents developed the information that the missing traps apparently had been taken by members of an organization that was having a convention in the town. There was no definite proof of this, however. In an effort to recover some, if not all of the traps, the inspector inserted a notice in the local paper to the effect that the traps were Government property and would be of no use to anyone as the season for beetles was almost over. The notice also stated that if the traps were not immediately returned, the ones who misappropriated them would be liable to prosecution. On the morning following the publication of the notice, the inspector found that the traps had been returned, although they were not replaced in their original positions. A check on his trap supply showed all traps accounted for.

Removal of traps operated outside the regulated zone in North Carolina and Virginia was in progress during August. The few traps still remaining at two locations in South Carolina at the beginning of the month were lifted on August 2 and 15, respectively. Trap removal was accomplished throughout North Carolina between August 2 and 19. Traps still remained in operation in 17 Virginia communities at the end of the month, but these are scheduled for lifting early in September. All traps operated for a period of 30 days in Maryland were collected and shipped back to the New Cumberland storage warehouse during August. Removal of the 60-day traps began on August 21, and it is anticipated that they will all be collected, packed, and returned to New Cumberland by September 8. Active traps are still being maintained in nonregulated territory in New Hampshire, Vermont, New York, Ohio, Michigan, Pennsylvania, and West Virginia.

On August 6, the Philadelphia Public Ledger devoted a full page of its rotogravure pictorial section to a series of seven photographs illustrating various phases of the Japanese beetle quarantine work in Philadelphia. These included a photograph of beetles balled on apples, the Philadelphia fruit and vegetable inspection platform, an inspector examining a trap in the Frankford Arsenal grounds, a scene in the Dock Street produce market, a picture of bananas being unloaded from a vessel, an orchard scene showing a scout examining a peach tree for beetle infestation, and an indoor scene at the Philadelphia district office at Frankford. In addition, three photographs were included showing several activities at the Moorestown, N. J., Japanese beetle research laboratory of the Bureau of Entomology. Also on August 6, at 8:30 p.m., Leicester K. Davis, radio reporter for the Public Ledger, broadcasted a talk on the "Japanese Beetle Quarantine" over station WHAT.

At the invitation of the superintendent of the Citizens Conservation Camp at Niantic, Conn., J. P. Johnson, in charge of the cooperative State and Federal Japanese beetle and European corn borer work in Connecticut, visited the C. C. C. camp on August 23 and supplied information concerning the two insects. Posters were also furnished concerning the life history and control measures practiced for these two insects as well as for the gypsy moth. It was learned that the officers in charge of the camp are instructing the members of the corps in control information which will be of general interest in connection with their present work and of assistance in conservation work upon their return to home communities.

Unusually good markets in Midwestern States for string and Lima beans grown in southern New Jersey and eastern Pennsylvania, which resulted in the inspection and certification of large quantities of these vegetables for carload movement from the regulated territory, were attributed by the shippers to drought conditions earl in July which affected almost all Western and Southern States. The Century of Progress exposition is also believed to have created an exceptionally high market for these products in Chicago.

Scouting of nursery and greenhouse establishments in Delaware, Maryland, Virginia, and the District of Columbia was completed shortly after the middle of the month and the approximately 50 temporarily employed men engaged in this work were dismissed. Surveys of uninfested classified establishments will continue in the more northern regulated States until various dates in September.

While adult beetles are in active flight, carloads of sand or soil to be shipped under certification from infested sections must be fumigated with carbon disulphide at a dosage of 1 pound, or 350 cc to 1 cubic yard of soil. Most of the material fumigated in this manner consists of sand which must be loaded in tight box cars. In fumigating sand loaded to a depth of 3 feet, two series of holes are required, one 18 inches in depth and the other 2 feet deep. These holes are made 18 inches apart, the first series beginning 9 inches from the edge of the car. A crowbar 2 inches in diameter, marked 18 inches from the end, is used to make the deeper holes. A funnel inserted in the end of a rubber hose is used to convey the fumigant to the proper depth. Surface holes are staggered between the deeper holes and the entire row completed and covered in one operation. This procedure requires measuring of each dose in a graduate, and pouring it from the small container. Such constant pouring in the confined space above the sand frequently causes great discomfort to the operator, especially on warm days. Care is also necessary not to step too near the deeper holes before the disulphide is applied. Another disadvantage of this method is the constant destruction of the rubber hose, which, dissolved by the fumigant, swells, and soon clogs. Fumigation of a carload by this method requires approximately 2 hours.

Carload fumigation has been considerably simplified by the use of an injector devised by V. A. Johnson, of the treating division. The body of the injector is made from 1/2-inch brass pipe, 36 inches long. A piece of solid brass rod sweated on the end and machined to a cone shape forms the point of the injector. Four small holes, 1/32 inch in diameter, drilled 1-5/8 inches from the tip, provide exit holes for the fumigant. The top of the cylinder is threaded and fitted with a 1/2-inch brass cap. A center hole in the cap is drilled for the plunger rod. This rod is 36 inches long, 3/8 inch in diameter, and is threaded from the bottom to within 9 inches of the top. Two nuts are screwed on the rod so that the length of the stroke may be regulated. Screwed to the upper end of the plunger is an automobile gear shift knob, used as a handle. The lower part of the rod is turned down to 1/4 inch and threaded for a push and pull leather plunger. Hand holds projecting from either side of the upper part of the cylinder are provided by a brass collar placed just under the top cap, in opposite sides of which are screwed brass rods 1/2 inch in diameter and 4 inches long. Another brass flange, 1-15/16 inches in diameter and 13/32 inch thick, is placed 18 inches from the exit holes to act as a depth guide. The latter flange contains a set screw to permit its adjustment to any desired depth.

For use as a guide in marking out the relative positions of the holes, a collapsible measuring stick has been constructed to take care of the width of a freight car. Marks are etched on the stick 18 inches apart for one row of holes, and two strap iron guides at either end provide for measurement between rows.

In practice it has been found that two injectors may most advantageously by used in fumigating a carload of sand. The new procedure consists of placing the measuring stick at one end of the car for the first series of holes. A bucket containing carbon disulphide is placed near the center of the stick so that it is convenient to inspectors working on either side. After careful regulation to draw up the exact amount of carbon disulphide, the injectors are charged by placing the tips in the fumigant and pulling out the plunger rods. The injectors are then pushed by means of the hand holds into the sand to the required depth and the liquid ejected. They are then refilled and the points just buried for the surface injection. Each inspector completes one half a row, after which the measuring stick is advanced 18 inches and the procedure repeated. By this method the time required to fumigate a car is reduced approximately one half. Inspectors using the injectors can stand erect. Fumes of carbon disulphide being heavier than air are not near so annoying as when continual measuring of the liquid is required at nose level. Use of the injector over a period of several months has shown that in every case the correct dosage is released at the proper level. Holes made by the injector are quite small and easily covered. The new instrument has proved to be efficient, labor saving, and conducive to fewer ill physical effects to operators applying the chemical. Seventeen carloads of sand were fumigated by means of injectors during the month of August.

Corn Borer Activities

Specimens of the European corn borer received from E. W. Chambers, State Entomologist, Madison, Wis., through D. J. Caffrey, in charge of the corn borer field laboratory of the Bureau of Entomology at Toledo, Ohio, indicate that corn borer larvae have been recovered this season by scouts employed by the State of Wisconsin in the following areas: Townships of Liberty Grove, Sevastopal, and Sturgeon Bay, in Door County; townships of West Kewaunee and Carlton, in Kewaunee County; township of Two Rivers, in Manitowoc County; township of Herman, in Sheboygan County; township of Calumet, in Fond du Lac County; township of Germantown, in Washington County; township of Mequon, in Ozaukee County; townships of Granville and Milwaukee, in Milwaukee County; township of Caledonia, in Racine County; and townships of Somers and Pleasant Prairie, in Kenosha County. Infestations have previously been found in Manitowoc, Sheboygan, and Racine Counties. Otherwise, the collections indicate first-record finds in the respective counties. With the exception of the infestations in Fond du Lac and Washington Counties, all first-record finds are in townships bordering on Lake Michigan, or contiguous to coastal townships. Infestations were discovered in the northernmost and southernmost townships bordering on the lake, indicating a wide range of infestation along the lake front.

Federal certifications to comply with State European corn borer quarantines were confined principally to the eastern and central areas. All beans shipped from southern New Jersey and eastern Pennsylvania to States requiring corn borer inspection certificates were certified at the same time Japanese beetle certification was granted. Inspectors who heretofore have been working exclusively on corn borer inspection work in Ohio, West Virginia, Indiana, and Michigan were reassigned to supervise Japanese beetle trapping activities in their areas. This is in exchange for an equal amount of time devoted to corn borer inspection work by the regular Japanese beetle personnel in New Jersey and Connecticut.

MEXICAN FRUIT FLY

The work of the Mexican Fruit Fly Project was seriously interrupted by a tropical hurricane which struck the Valley on August 4. This part of the Gulf Coast has been remarkably free from these disturbances, none having occurred since about 1870, when the village of Clarksville at the mouth of the Rio Grande was destroyed. The velocity of the wind at Brownsville was about 70 miles per hour, but decreased rapidly to the westward, being only about 40 miles per hour at Mission. It was estimated that about 90 percent of the fruit in the Brownsville district was whipped from the trees, while in the Mission district, at the other end of the Valley, only about 2 or 3 percent was blown off. Considerable damage was done to buildings in Brownsville and to plate glass windows and signs as far west as Mercedes. Traps which were in the trees were damaged to some extent and quite a number were lost. Rains which accompanied the hurricane made the groves impassable, and as soon as they were dry the attention of the inspectors was directed to the removal of the fallen fruit. This resulted in a considerable lessening of the trapping operations during the remainder of the month.

Following a survey of the damage done to the fruit, the Federal and State Departments recommended that the fallen fruit be disposed of by either regulation burial, by piling in furrows in the middle of tree rows and covering, or by throwing to the middles and double discing. This latitude in the disposition of the fruit was granted in view of the financial condition of many of the growers and the fact that the fruit was still immature.

Through agitation by a number of growers and others, the Director of the Reconstruction Finance Corporation of Texas authorized the use of laborers from that organization in the cleaning of the groves. It was realized that to be effective the destruction of the drop fruit would have to be accomplished quickly. The direction of the R. F. C. labor was turned over to the inspectors of this project, and for the few days during which the laborers were able to work, they made good headway in disposing of the fallen fruit. However, heavy rains occurred which interrupted their work. Further, an election was held on the 20th authorizing the issuing of $20,000,000 in bonds to be used in relief work in Texas. Pending the outcome of this election, the Federal authorities had notified the State that no more funds would be advanced unless the State approved these bonds. For that reason the State officials were conserving the funds on hand and allowing work only to those actually in distress, which cut down the supply of labor needed for the clean-up work. All R. F. C. work in the Valley was stopped on the 25th, when only about two thirds of the fruit had been disposed of. The burden of the clean-up work was then thrown on the growers who made very good headway the remainder of the month.

The operation of traps on the Texas side of the river resulted in the taking of 5 adult *A. ludens*, 106 *A. serpentina*, 9 *A. pallens*, and 2 *A. fraterculus*. The *ludens* were taken in a grove at Mercedes and in two groves at Weslaco. These groves were thoroughly sprayed with the nicotine-molasses poison.

Of particular interest was the identification of a number of adult flies reared by the Mexican inspector at Matamoros from peaches originating in Ramos Arispe, Coahuila, Mexico, as *A. serpentina*. Larvae from this same shipment of peaches showed all the characters of ludens. This is the first record of A. serpentina being reared from peaches and establishes a new host for this species. In Mexico serpentina is considered as an enemy of mameys and sapotes.

Preparation for the harvesting of the largest crop ever produced in the Valley was well under way by the end of the month. Additions were being made to a number of packing plants and quite a few new plants were being erected. It was estimated by the industry that around 15,000 carloads of fruit would be shipped this season. Preliminary maturity tests showed that quite a bit of the Duncan grapefruit and navel oranges were ready for harvesting.

PINK BOLLWORM

Gin-trash inspection has been continued in the area below San Antonio to and including the lower Rio Grande Valley. On the whole, working conditions have been satisfactory, and more material has been examined this season than ever before without any signs of the pink bollworm being found. Ginning was largely completed by the end of August. The machines were therefore moved to new areas east and northeast of San Antonio.

Permission was secured to operate the two machines in Mexico, and one of the mobile machines was set up at Matamoros, opposite Brownsville, where six gins are in operation. Due to the practice of shipping seed cotton into Matamoros in railway cars, the men were able to secure samples of trash from many different localities. Ginning goes on almost continuously, hence rains did not interfere with gin-trash inspection at this place as much as in other locations. One of the small hand machines first began operating at Nuevo Laredo, Mexico, which is opposite Laredo, Tex. Some cotton is also shipped to this point for ginning, therefore trash was very plentiful. This machine was later moved to the Don Martin Project, which is some 60 miles from the border. There are some 25,000 acres of cotton on this project, and with three gins operating there was plenty of trash. Aside from the boll weevil and leaf worm, insects were very scarce. All trash inspected by both of the above machines gave negative results.

Inspections of the 1933 crop have been begun in the Southeastern States. In northern Florida and southern Georgia both field and gin-trash inspections are being carried on, while in Mississippi, Alabama, and South Carolina only gin-trash inspection is now being performed. The results of all inspections have been negative to date.

The daily collection and examination of cotton blooms from the plats at Chapman Field, Fla., were continued throughout the month, with negative results. From time to time okra and other hibiscus blooms have also been examined. On August 23, two pink bollworm larvae were found in hibiscus blooms. The plant on which the insect was found is a hybrid, Hibiscus rosa-sinensis. Immediately after this finding, two inspectors began an intensive examination of hibiscus blooms, and at this time 10,000 have been inspected without finding any further specimens. It would therefore appear that there was no general infestation in hibiscus.

During the month an inspection trip was made down on the Florida keys to see how much growth had been made by wild cotton seedling and sprout plants since the clean-up work. Sprout plants were observed along the road on the extreme lower end of Upper Matecumbe and on Lower Matecumbe Keys. Only three or four plants were found to be fruiting, the great majority apparently having made most of their growth since the rainy season began. The plants where sodium arsenite was applied last fall were also inspected. It was found that where the solution had been poured around the roots of the plants they had not been killed. In cases where the base of the stalk had been bruised before the solution was applied, the plants had been killed. Plants that were sprayed with the solution merely shed their leaves and put out new growth. It is therefore apparent that in order to kill the plants, the stalks will have to be bruised in some manner before the solution is applied.

The trap-plat work in the Big Bend of Texas was brought to a close on August 18. At this time only three of the plats were being used, and these continued to show higher infestation than the adjacent fields. Boll counts made in the fields indicated that the infestation was increasing, so that there seemed to be no particular advantage in continuing the plats. Bloom and boll inspections made at random in various fields throughout the Presidio section have shown a light infestation. On August 25 the first cotton of the 1933 crop, consisting of 5 bales, was ginned at Presidio. From these 5 bales, 1-1/2 bushels of gin trash obtained was run through one of the small hand machines, and resulted in the finding of 683 pink bollworms, or an average of 136.6 worms per bale. The first ginning of the 1932 season was from this same field, and from 2 bales, three fourths of a bushel of gin trash contained 2,321 pink bollworms, or an average of 1160.5 worms per bale. This is a reduction of 88 percent over the 1932 season. On August 30, one half bushels of trash was obtained from 2 bales from another farm, from which 673 specimens were taken, or an average of 336.5 worms per bale. The first bale from this farm in the 1932 season resulted in the finding of 922 pink bollworms in the one half bushel of trash obtained. This shows a 77 percent reduction over the 1932 season. From the above results it seems that the control measures enforced in the Big Bend have made a considerable reduction in the worm population.

The inspection of material collected from fields in the Salt River Valley of Arizona, before they were plowed under, has been completed. In addition, green bolls from all parts of the area have been inspected during themonth, without any signs of the pink bollworm having been found. Toward the close of the month a few bales of cotton were ginned. All of the trash was collected and run through one of the small machines with negative results. It now appears that ginning will be well under way in this area by the middle of the coming month, at which time it is planned to put four gin-trash machines in operation.

A considerable amount of material from the 1933 crop has been inspected in the Thurberia weevil area, without any signs of either the weevil or the pink bollworm being found. Investigations have also been made to determine just how near to the eastern plantings of cultivated cotton Thurberia plants are growing. However, some further investigations will be necessary before this can be obtained accurately. It is of interest to note that the Thurberia plants are now blooming profusely, and there are prospects for a heavy crop of bolls. Weevils have already begun emerging, and have started to attack the buds and small bolls. It will be some time yet before ginning gets under way in this area. Only one gin will be operated again this season, and they will naturally wait until a considerable amount of seed cotton has accumulated before beginning operations. It is planned to use one of the small gin-trash machines in this area.

PREVENTING SPREAD OF MOTHS

Regular scouting work was resumed during the month in the barrier zone in Massachusetts and Connecticut. In the Pennsylvania area approximately 175 local laborers continued with the work of clearing sprouts and small brush from the infested territory cut over during the fiscal year 1933. On August 21, scouting was started in the lowlands along the banks of the Susquehanna and Lackawanna Rivers, but on account of flood conditions which resulted from the heavy rain, it was found necessary to temporarily discontinue scouting after only a few days' work. At one time the water in these rivers was 20 feet above the low water mark.

Effective August 16, under the National Industrial Recovery Act, funds amounting to $2,020,620 were allotted to the Bureau of Plant Quarantine for gypsy moth work. This money is to be expended in Vermont, Massachusetts, Connecticut, New York, and Pennsylvania. Scouting is to be carried on in New England in the barrier zone and east of the zone to the Connecticut River, the northern part of New York State in Clinton County, and in Pennsylvania. Work was immediately started in securing men for supervisory positions on this project, all such positions being filled by men experienced in gypsy moth work. These men, together with the regular supervisory personnel, will train and direct a force of about 2,000 men to be secured through the National Reemployment Service in each State where Federal gypsy moth work has been authorized. One of the first steps taken was to establish locations for training schools, as very few men will have had previous experience in such work and most of them will have to be taught to recognize the insect in the various stages of its life history and how and where to look for it. These training schools are being established in Connecticut, Massachusetts, southern Vermont, and in Pennsylvania, where the gypsy moth is plentiful in woodland An important factor in locating training schools was the necessity of securing boarding facilities for such a large number of men at or near these locations. Upon completion of a short training period the men will be assembled in crews and assigned to various parts of the territory for regular scouting work.

The gypsy moth program in the Emergency Conservation camps is being developed rapidly, but there will be no duplication of the work conducted under the National Industrial Recovery Act. During August, an average of 150 men were engaged on gypsy moth work in the C.C.C. camps in Connecticut and Vermont, and good progress is being made. It has been difficult to secure men for gypsy moth work in these camps as so many are engaged in construction work and various camp duties. No gypsy moth work has as yet been started in camps in Massachusetts, but foremen are to be appointed to these camps early in September.

A total of 6,737 assembling cages have been placed this season in States as follows: 1,823 in 54 towns in Pennsylvania; 1,893 in 49 towns in Connecticut; 1,212 in 29 towns in Massachusetts; 703 in 17 towns in Vermont; 1,081 in 26 towns in New Jersey; and 25 cages in Canada (put out by Canadian officials). A large number of male gypsy moths have been caught in Pennsylvania, Connecticut, and Massachusetts. To the end of the month 61 male gypsy moths were caught at 30 cages in 15 towns in Pennsylvania; 461 male moths at 271 cages in 34 towns in Connecticut; and 136 male moths at 48 cages in 11 towns in Massachusetts. One male moth was caught in a cage in New Jersey, as was mentioned in the September News Letter. This makes a total of 659 male moths caught at cages up to the end of August. No moths were taken at cages in Vermont, and no report has been received of any catches being made in Canada. By the first of September work was started in removing the cages, but reports were still being received of a few catches of male moths.

For several years from reports received from employees of this project, State officials, and various other sources, there have been indications that gypsy moth infestations were building up in woodland areas in many towns not more than 20 or 25 miles from the eastern border of the barrier zone in Massachusetts, Connecticut, and southern Vermont. This year, several serious infestations have been found in this area east of the zone. In Massachusetts, infestations have been found in Westfield, Hatfield, and Amherst. The infestation at Hatfield is located on a large white oak tree in a field in level country. As this tree is to be cut down and sections of it used as part of the State exhibit at the Eastern States Exposition, it was decided to make a rough count of the egg clusters, and it was found that there were more than 5,200 new egg clusters on this tree. Egg clusters were also located on tobacco plants, stones, and debris nearby. At Amherst, an area of approximately 150 acres is generally to very heavily infested. The infestation is on high elevation in growth consisting of gray birches, pine, and other species averaging 25 to 30 feet in height, and is ideally situated for wind spread regardless of wind direction. The towns of Westfield and Hatfield are between the zone and the Connecticut River, the infestation at Westfield being approximately 15 miles and the one at Hatfield about 20 miles from the zone. Although Amherst is situated on the east side of the Connecticut River, the infestation existing there is only 20 miles air line from the nearest point in the zone. In addition to the infestations referred to above, serious infestations are known to exist in Erving, Mass., Hinsdale, N. H., and Rockingham, Vt. None of these infestations are more than 25 miles air line from the east zone line. At Groton, Conn., approximately 30 acres were defoliated this year, and an additional 200 acres showed evidence of feeding. The gypsy moth infestation conditions at Groton are the most serious to exist in that State since infestation was first discovered there.

Observations have been made during the month of the amount of injury to cranberry bogs by gypsy moth larvae in the Cape Cod section of Massachusetts, which is the center of the cranberry growing industry in this State. Many of the owners of these bogs have been interviewed for estimates on damage caused by gypsy moth larvae. It was found that in some cases, where serious infestations of the gypsy moth existed in the surrounding woodland, heavy losses resulted from the drift onto the bogs from surrounding woodland. In some places the injury was so severe that there will be very few cranberries harvested from the affected areas. One small bog, approximately 5 acres in extent, which yields normally about 200 barrels of berries, has so few berries on it now that it is practically a total loss. Owners of these bogs have adopted an extensive spraying campaign and in some instances, where surrounding woodland areas are under their control, have cut out excessive tree growth and underbrush in areas surrounding their bogs and have sprayed other trees to reduce the infestation. Bogs in the infested areas have been sprayed two or three times and sometimes more with arsenate of lead, and in some cases these spray programs have served to save part of the crop.

It has been noticed from time to time that more publicity is being given in the New England newspapers to the gypsy moth and the damage it causes. Considerable attention has been given to the serious injury to trees caused by the gypsy moth in the Cape Cod section of Massachusetts. Although the gypsy moth is present in the western section of the New England States, the insect has not as yet caused sufficient damage to arouse intense interest of the general public in this area. The August 13 number of the Springfield Sunday Union and Republican carried a full page write-up of the gypsy moth project, relating the history of the gypsy moth in this country and the work that has been carried on to prevent the spread of this insect. The article described clearly and interestingly all phases of the control and eradication activities of this project and contained several illustrations of the work. It is believed that as a result of this article, many people hitherto rather unfamiliar with the gypsy moth will have a clearer understanding of the work that is being carried on to prevent the spread of this pest.

The importance of inspection of freight cars to prevent the spread of gypsy moth infestation was made very evident this month when infestation was found on a considerable number of these cars on a railroad track which had been abandoned for general traffic in Cumberland, R. I. A total of 344 cars were stored on this abandoned line extending over a distance of about 4 miles. These cars are to be repaired and placed in service as soon as possible, after which they may be moved to almost any point in the United States. A total of 217 new gypsy moth egg clusters were creosoted on these cars, most of the clusters being on the wheels and iron work of the cars. Apparently caterpillars had crawled from nearby areas where small tree growth was rather heavily infested and had found shelter from the sun under the cars as they stood on the tracks. Four hundred and fifteen egg clusters were creosoted on the rails and railroad ties. Considerable difficulty was encountered in creosoting the egg clusters as many of the wheels on the freight cars were hollow and egg clusters had been laid inside of them. In order to creosote these egg clusters, it was necessary to spray the insides of hollow wheels with the use of a suction pump and power spray nozzle. The hand pump was worked in a bucket of creosote outside the cars by one inspector and the spray hose handled underneath the car by another.

A number of years ago a survey was made to determine the possibility of gypsy moth infestation being carried on railroad cars that might be stored on sidings. It was determined at that time that practically all the sidings where cars were held did not have trees growing nearby. However, during the last few years a considerable mileage of railroad tracks has been abandoned in New England for regular service and on some of these tracks surplus cars have been stored. The movement of freight cars has been very greatly curtailed during the depression

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but many are now being put back into service. Contact has been made with railroad companies in the quarantined area and their cooperation secured. All sidings where cars are stored are being inspected and if infestation is found, treatment will be applied before they are permitted to move.

The district inspector of the Bangor, Maine, district, while taking gypsy moth defoliation records in some of the towns which were assigned to him in the Bath, Maine, district, located a moderately heavy infestation of beech scale in the town of Washington, Maine, which is located in the extreme northwestern part of Knox County. According to this observation the infestation extended over a considerable area. It is about 4 miles from a heavy infestation of this scale located in the town of Liberty, Maine, which was discovered by men from the Gypsy Moth Laboratory at Melrose Highlands, Mass.

Scouting for the satin moth egg clusters in towns just outside of the present satin moth quarantine line in New England was completed in August The only towns outside of the present quarantine line that have been found infested are one in New Hampshire and eight in Maine. The trend of the spread is toward the northeast parts of Maine, the farthest town north being Houlton, which borders New Brunswick, Canada.

The fall season for the shipment of nursery stock usually begins sometime in the middle of September. At first, shipments are few and it is not until about two weeks later that the real bulk of the shipping starts. This year one of the nurseries located in a northern section of the gypsy moth quarantined area adopted a new method of advertising, and if successful results are noted they plan to use this method more extensively in the future. If such proves to be the case, it will serve to increase the amount of inspection and also to make the beginning of the inspection season considerably earlier than in the past. From their list of old customers they selected 1,000 names. To each person on this list they sent a copy of their latest catalog and included with it a small blue spruce. All of these went to points outside of the quarantined area and therefore it was necessary that each tree be inspected and each package certified. If this custom should spread to other nurseries it will undoubtedly result in a very much increased amount of inspection, as most of the nurseries have large mailing lists composed of individuals and firms to whom catalogs are sent regularly.

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